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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/691,303

10/21/2003

Hirokazu Goto

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04/18/2005

BACHMAN & LAPOINTE, P.C.

900 CHAPEL STREET

SUITE 1201

NEW HAVEN, CT 06510

EXAMINER

NGUYEN, TUNG X

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary

Application No.

10/691,303

Applicant(s)

GOTO, HIROKAZU

Examiner

Tung X. Nguyen

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Stauth et al. (u.s.p 6,781,359).

As to claim 1, Stauth et al. disclose in Figs. 1-2, the current sensor comprising a hall effect sensor (12 of figure 1), a plurality of lead terminals (15) electrically connected to the hall effect sensor (12); a plastic package for encapsulating the hall effect sensor (14) and each end of the lead terminals (col. 3, lines 17-25); and a conductor (16) loosely disposed with a gap (h3 of figure 1) in an opening formed in the plastic package and in spaced relation to the hall effect sensor (12) to pass a detected electric current through the conductor (col. 1, lines 20-25).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stauth et al. (u.s.p 6,781,359), in view of Morimoto et al. (u.s.p 6,515,468).

As to claims 2-3, 8, Stauth et al. disclose in Figs. 1-2, all of the limitations except for a core formed of a magnetic material and a reinforcement tube embedded in the plastic package. However, Morimoto et al. disclose in Figs. 2, the current sensor (10 of figure 2) with a core and reinforcement tube embedded in the plastic package (10) for protecting the current sensor. Therefore, It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the system of Stauth et al., and embed the core in the plastic package for protecting the current sensor.

As to claims 4-5, Stauth et al. disclose in Figs. 1-2, the conductor (16 of figure 1) is formed with a pair of legs (16a of figure 1) that extend outside the opening (h3), each of the legs having a bent (fig. 2) curved or enlarged portion to prevent disengagement of the conductor from the opening.

As to claim 6, Stauth et al. disclose in Figs. 1-2, the conductor is larger than the opening in length but smaller than the opening in thickness and width to cause the conductor to vertically, longitudinally and widthwise move in the opening (fig. 1a).

As to claim 7, Stauth et al. disclose in Figs. 1-6, the conductor (16 of figure 1) comprising a pair of bases (end of 16) at the opposite ends to electrically connect the bases to printed circuit on substrate (fig. 6, col. 9, lines 25-35) for detection of electric current through the conductor.

As to claim 9, Stauth et al. disclose in Figs. 1-2, the conductor (16 of figure 1) may be arranged in the opening (h3) without contact to inner surfaces of the reinforcement tube (16).

As to claim 10, Stauth et al. disclose in Figs. 1-2, a support pad (under chip 14 with h1 of figure 1) for mounting the hall effect sensor on the support pad; wherein the support pad, hall effect sensor and lead terminals form a lead frame for integral attachment in a cavity of a mold to form the package.

As to claim 11, Stauth et al. disclose in Figs. 1-2, the conductor (16 of figure 1) forms a magnetic field of magnetic flux and the core forms a magnetic circuit (24 of figure 1) through which the magnetic flux passes across the Hall effect sensor.

As to claim 12, Stauth et al. disclose in Figs. 1-2, the core (24 of figure 1) comprises a pair of arm plates (24b, 24c of figure 1) and a connector (16) for connecting the arm plates to define a channel (h3); a reinforcement tube (16) is positioned in the channel (h3) to receive the conductor (16) in the reinforcement tube.

As to claim 13, Stauth et al. disclose in Figs. 1-2, each of the arm plates (24b, c of figure 1) has an inward lug at free end extending toward the Hall effect sensor (14).


Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung X. Nguyen whose telephone number is (571) 272-1967. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (571) 272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TN
4/12/05


VINH NGUYEN
PRIMARY EXAMINER
A.U. 2829
04/14/05